



Case Report

Acute myocardial infarction and ventricular tachycardia due to blunt chest trauma

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Abstract

Acute myocardial infarction (AMI) is a rare complication following blunt trauma, which is difficult to diagnose early and manage promptly. We describe a 30-year-old man who developed ventricular tachycardia caused by AMI after blunt chest trauma. Copyright © 2012, Taiwan Society of Emergency Medicine. Published by Elsevier Taiwan LLC. All rights reserved.

Keywords: Acute myocardial infarction; Blunt chest trauma

1. Introduction

Blunt trauma can cause various cardiac injuries, ranging from nonsignificant arrhythmias to fatal cardiac rupture. Acute myocardial infarction (AMI) is a rare complication of trauma; it is difficult to diagnose early because of its nonspecific presentation. Herein, we report a young man who developed ventricular tachycardia caused by AMI after blunt chest trauma.

2. Case report

A 30-year-old man presented to the emergency department with chest pain and dyspnea, after being hit by a truck while riding a motorcycle. He did not have hypertension, diabetes mellitus or coronary artery disease. On arrival, his consciousness was clear. His body temperature = 35.6 °C, pulse rate = 135/minute, respiratory rate = 28/minute, and blood pressure = 114/73 mmHg. His electrolytes and renal and liver function tests were within normal limits. Chest radiography

showed bilateral pneumothorax and right 2nd – 4th rib fractures, so bilateral chest tubes were inserted immediately. Additionally, an electrocardiogram (ECG) disclosed ST segment elevation in leads II, III and aVF (Fig. 1). The serum creatinine kinase level was 1696 IU/L, with an MB fraction of 63.6 IU/L, and the serum troponin-I level was elevated (1.93 ng/mL). Echocardiography demonstrated akinesia of the inferior wall. Twenty minutes later, the patient suddenly lost consciousness with no pulse, and the ECG monitor displayed ventricular tachycardia. Cardiopulmonary resuscitation with defibrillation was performed immediately, however, spontaneous circulation did not return and he died, in spite of aggressive resuscitation.

3. Discussion

Blunt chest trauma can cause various degrees of cardiac injury, including AMI. It is not easy to detect AMI early following blunt chest trauma, because of its low frequency and nonspecific clinical presentation. In addition, most chest pain following trauma can be attributed to contusion of the bone or soft tissue, which may mask pain of cardiac origin. In this case, the diagnosis of AMI was confirmed by a typical ECG presentation and elevated cardiac enzymes. Therefore, our

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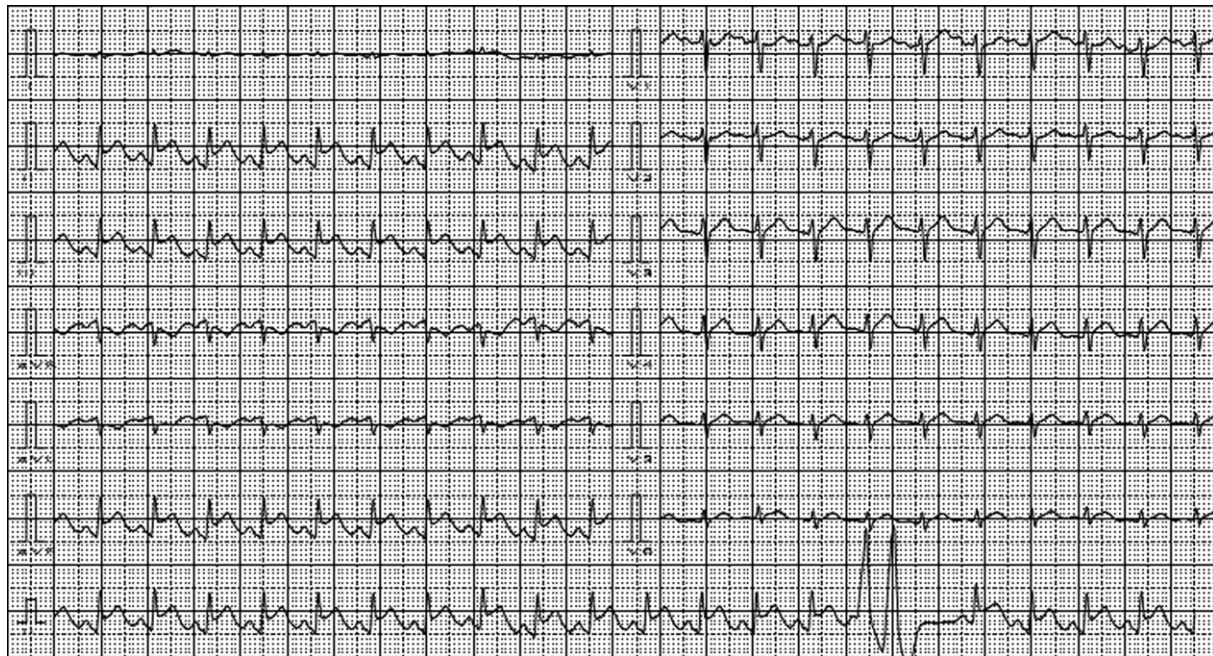


Fig. 1. The electrocardiogram shows ST segment elevation in leads II, III and aVF.

findings suggest that physicians should be alert to this rare complication of chest trauma, and ECG should be used routinely to screen for any cardiac injury, such as myocardial infarction or cardiac contusion, after trauma.

We did not perform coronary angiography to elucidate any coronary artery injury. Injuries to the coronary arteries as the cause of AMI following chest trauma are protean, and include laceration, thrombosis, intimal dissection, arteriovenous fistula, and pseudoaneurysm.^{1–4} The proposed mechanism of coronary artery injury after trauma, is a shear force generated by sudden acceleration or deceleration, direct chest trauma, heart compression between the sternum and thoracic segment of the spine, and a sudden increase in intra-aortic pressure due to abdominal or lower limb compression during an impact. Furthermore, shear force applied to the coronary artery may lead to intimal tearing, and precipitate platelet aggregation and an intracoronary thrombosis.^{5,6}

In conclusion, AMI is an uncommon complication of blunt chest trauma, but it can lead to ventricular tachycardia. Clinicians should be alert to this rare complication. ECG is essential in the diagnosis.

Conflict of interest statement

None to declare.

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